FIG. 1a

970	980	990	1000	1010	1020
AGGTTTACCG	CATTTTGACA	CTAGATGGCA	TCCGTCCCAC	GGGTAGCAGG	TCATGAAGCT
TCCAAATGGC	GTAAAACTGT	GATCTACCGT	AGGCAGGGTG	CCCATCGTCC	AGTACTTCGA
1030	1040	1050	1060	1070	1080
GACCAAGGCA	AGTCCTTTCA	GGGGGAAGAA	AATCAGGAAA	AAAAAAAATT	TTAGAAGCAT
CTGGTTCCGT	TCAGGAAAGT	CCCCCTTCTT	TTAGTCCTTT	TTTTTTTTAA	AATCTTCGTA
1090	1100	1110	1120	1130	1140
TTCAAGAAGC	AAGATGGAAT	ATTTGTACAA	AACAGGTGCT	TTCTCCCCCA	CCATGCGACC
AAGTTCTTCG	TTCTACCTTA	TAAACATGTT	TTGTCCACGA	AAGAGGGGGT	GGTACGCTGG
1150	1160	1170	1180	1190	1200
CGGGAGCTCC	ACTGATATGG	ACAGAATAGC	TTTACAGCTA	CATTCAAAAC	ACACACACAC
GCCCTCGAGG	TGACTATACC	TGTCTTATCG	AAATGTCGAT	GTAAGTTTTG	TGTGTGTGTG
1210	1220	1230	1240	1250	1260
ACACACACAC	ACACACACAC	ACACACACAC	ACACACACAT	GTTTTCTTCC	CTCCCTCCAC
TGTGTGTGTG	TGTGTGTGTG	TGTGTGTGTG	TGTGTGTGTA	CAAAAGAAGG	GAGGGACCTC
1270	1280	1290	1300	1310	1320
TTCCTCCCAT	TCTCTGTGGT	CCCAAAGAGA	TGACCATATT	GACTGTAGAA	ATCACACCAC
AAGGAGGGTA	AGAGACACCA	GGGTTTCTCT	ACTGGTATAA	CTGACATCTT	TAGTGTGGTG
1330	1340	1350	1360	1370	1380
CATAAAAGCC	CATCTGGGAG	CCATTTCCAG	ACTGATCTTT	TTATCATTAA	GGTTTGAATT
GTATTTTCGG	GTAGACCCTC	GGTAAAGGTC	TGACTAGAAA	AATAGTAATT	CCAAACTTAA
1390	1400	1410	1420	1430	1440
CTTGCCACGT	GTGGGTTTTA	AGGTTTTTAG	GGATTTTTAT	CTAGCGGCAC	TCACCTGCTT
GAACGGTGCA	CACCCAAAAT	TCCAAAAATC	CCTAAAAATA	GATCGCCGTG	AGTGGACGAA
1450	1460	1470	1480	1490	1500
CCCTGTGAAT	GTTCAGAATT	CACTGGGCTT	GGTCAGCTAA	TGGAAATGAT	CTATGGTTTG
GGGACACTTA	CAAGTCTTAA	GTGACCCGAA	CCAGTCGATT	ACCTTTACTA	GATACCAAAC
1510	1520	1530	1540	1550	1560
ACTTAAATGT	GAAAGGAAAA	AAAAGAAGGG	GGAAAAGGAG	GGAGGGAGAA	AGAGGGGAAG
TGAATTTACA	CTTTCCTTTT	TTTTCTTCCC	CCTTTTCCTC	CCTCCCTCTT	TCTCCCCTTC
1570	1580	1590	1600	1610	1620
GGAAAACTGC	CTTTTATGCC	TATTGCTACT	CTAACATTTT	GTCTCTCACC	TTCCACTTGG
CCTTTTGACG	GAAAATACGG	ATAACGATGA	GATTGTAAAA	CAGAGAGTGG	AAGGTGAACC
1630	1640	1650	1660	1670	1680
TTCTTCAATG	GAAAGACTGG	ATAGAAAGCT	GGGAGCCAGC	CAGGGATAGG	AGGAGTGTGT
AAGAAGTTAC	CTTTCTGACC	TATCTTTCGA	CCCTCGGTCG	GTCCCTATCC	TCCTCACACA
1690	1700	1710	1720	1730	1740
GTGTGTGTGG	GGGGGGGTGG	GCAGCAAGCA	GAGCCTTAGA	GACAGAGAAG	AGCCTGCTAG
CACACACACC	CCCCCCCACC	CGTCGTTCGT	CTCGGAATCT	CTGTCTCTTC	TCGGACGATC
1750	1760	1770	1780	1790	1800
AGAYCATGAG	CTTYCTTTGA	GACCCCTAGT	GCTAACAGGA	ATAGTTCCTA	ACCAGGTAGC
TCTRGTACTC	GAARGAAACT	CTGGGGATCA	CGATTGTCCT	TATCAAGGAT	TGGTCCATCG
1810	1820	1830	1840	1850	1860
TGTGGTCACG	TGACTCGGCT	GGAAGSCCTG	GCTTTGTCTT	TTTGCTTGCT	GTGCAGCCTT
ACACCAGTGC	ACTGAGCCGA	CCTTCSGGAC	CGAAACAGAA	AAACGAACGA	CACGTCGGAA

FIG. 1b

```
      1870       1880       1890       1900       1910       1920
GAACAAACAC CCTGGCCTCT TTGAACCCCA CTATTTCTCA GCCCTCAGAT GAAGAAGTAA
CTTGTTTGTG GGACCGGAGA AACTTGGGGT GATAAAGAGT CGGGAGTCTA CTTCTTCATT
      1930       1940       1950       1960       1970       1980
TGGTACCTTG GAGGATACTG ATGGGTTCAA GTGAACTAGG GCAGAGGGTG GAAGGTTTTG
ACCATGGAAC CTCCTATGAC TACCCAAGTT CACTTGATCC CGTCTCCCAC CTTCCAAAAC
      1990       2000       2010       2020       2030       2040
TAACCATAAA CTGAAGTGGG GTGTTGGTTA GTAAGTAGCC ATGAATACCA TAAAAATATC
ATTGGTATTT GACTTCACCC CACAACCAAT CATTCATCGG TACTTATGGT ATTTTTATAG
      2050       2060       2070       2080       2090       2100
TGTCAGGTGG CCAGAGCATC ACTGTGTTCA GAACACAACG GCCCACTCAG AACACGCGGA
ACAGTCCACC GGTCTCGTAG TGACACAAGT CTTGTGTTGC CGGGTGAGTC TTGTGCGCCT
      2110       2120       2130       2140       2150       2160
CAATTGAAAG GCACCAACCT CCGTGCTTCC TACCCGTTGT TTTGTTACCG TGTAAACGCA
GTTAACTTTC CGTGGTTGGA GGCACGAAGG ATGGGCAACA AAACAATGGC ACATTTGCGT
      2170       2180       2190       2200       2210       2220
ACTCAACTCT CGGCACTGAA CAGGCTTTTG CTGCAGACCT GGGGTCTGGA GGTGTTGTCT
TGAGTTGAGA GCCGTGACTT GTCCGAAAAC GACCTCTGGA CCCCAGACCT CCACAACAGA
      2230       2240       2250       2260       2270       2280
CTGAGACAGG AAAACTCATC TTGTTACTAT GGCATAGTAG TAACCACGGA GCTCTGAGAT
GACTCTGTCC TTTTGAGTAG AACAATGATA CCGTATCATC ATTGGTGCCT CCAGACTCTA
      2290       2300       2310       2320       2330       2340
AGCCCTGAGC TGGTGCCGTT TAGAAAAGTT TGATGCTTTA GAAAGAAATC GTGGCTTAAA
TCGGGACTCG ACCACGGCAA ATCTTTTCAA ACTACGAAAT CTTTCTTTAG CACCGAATTT
      2350       2360       2370       2380       2390       2400
AGAAGCCTAC CTGGCATGGG GGCCCATCCT CTCCAGCCAT CCGAATCTCA ATCTGGTCGT
TCTTCCGATG GACCCTACCC CCGGGTAGGA GAGGTCGGTA GGCTTAGAGT TAGACCAGCA
      2410       2420       2430       2440       2450       2460
GTGCGTAAGA ATAGAATCCT CGGAATGGTA ACCATGTCTT GCTTTTTCTT CTGGGCTTGC
CACGCATTCT TATCTTAGGA GCCTTACCAT TGGTACAGAA CGAAAAAGAA GACCCGAACG
      2470       2480       2490       2500       2510       2520
TGAGGAAGTC CCAGGCAGCG TAGACGTCTT GGGGGTAGGT CTGGGAAAAA TCTCCCAAGA
ACTCCTTCAG GGTCCCTCGC ATCTGCAGAA CCCCCATCCA GACCCTTTTT AGAGGGTTCT
      2530       2540       2550       2560       2570       2580
TTTTAGGAGG GGCAGGCGGG GGATGAGAAA CTTGGAGATT CGGTAGATCG CTGTAGAGCA
AAAATCCTCC CCGTCCGCCC CCTACTCTTT GAACCTCTAA GCCATCTAGC GACATCTCGT
```

Punitive transcriptional start site (5'- end of rat brain 5' - race product).

```
      2590       2600       2610       2620       2630       2640
ACTCAGACAG TCGGCGGCCT GAAGAGGACT TGTGCAAACA CTTCCTCTCT GGACAAGGAG
TGAGTCTGTC AGCCGCCGGA CTTCTCCTGA ACACGTTTGT GAAGGAGAGA CCTGTTCCTC
      2650       2660       2670       2680       2690       2700
GAATGCAGGA GGCCACCGCC TGCAGTACAT CTTGGAGTGT TGGAGGGATG TGCCTGCACT
CTTACGTCCT CCGGTGGCGG ACGTCATGTA GAACCTCACA ACCTCCCTAC ACGGACGTGA
```

Corresponds to translational start site in rat/human GLP-2R gene.

```
      2710       2720       2730       2740       2750       2760
TGTGAAAGGG CGCCAGAAGG TACGAGGCCCC AACCAAGCCC GGCAGTGCCC AGTAGATGCA
ACACTTTCCC GCGGTCTTCC TGCTCCGGGG TTGGTTCGGG CCGTCACGGG TCATCTACGT
      2770       2780       2790       2800       2810       2820
GAGAGCGTCC CTGCCCCGGG CGCACAGTWG GGCTCCCTGC GGCCCAGGGG CCTGAGTCTC
CTCTCGCAGG GACGGGGCCC GCGTGTCAWC CCGAGGGACG CCGGGTCCCC GGACTCAGAG
```

FIG. 1c

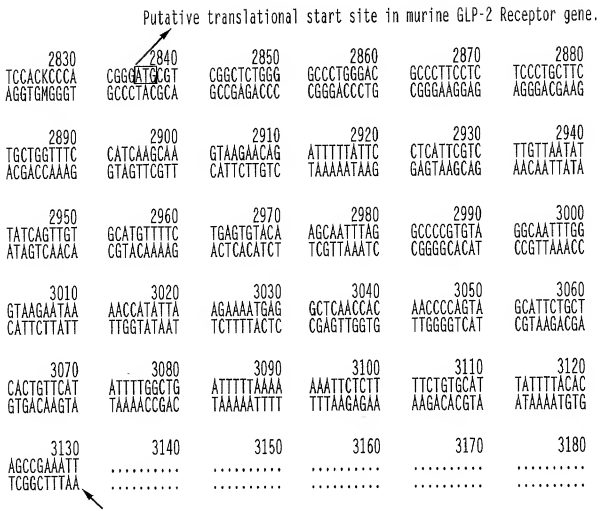
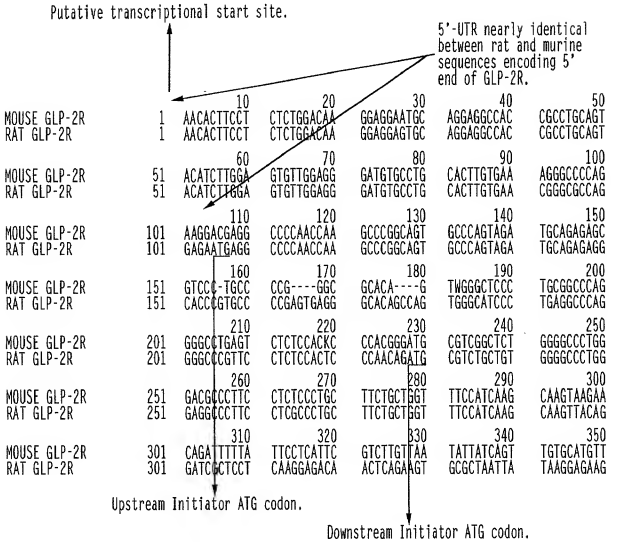

Putative translational start site in murine GLP-2 Receptor gene.
2830
TCCACKCCCA
AGGTGMGGGT
2840
CGGGATGCGT
GCCCTACGCA
2850
CGGCTCTGGG
GCCGAGACCC
2860
GCCCTGGGAC
CGGGACCCTG
2870
GCCCTTCCTC
CGGGAAGGAG
2880
TCCCTGCTTC
AGGGACGAAG
2890
TGCTGGTTTC
ACGACCAAAG
2900
CATCAAGCAA
GTAGTTCGTT
2910
GTAAGAACAG
CATTCTTGTC
2920
ATTTTTATTC
TAAAAATAAG
2930
CTCATTCGTC
GAGTAAGCAG
2940
TTGTTAATAT
AACAATTATA
2950
TATCAGTTGT
ATAGTCAACA
2960
GCATGTTTTC
CGTACAAAAG
2970
TGAGTGTACA
ACTCACATCT
2980
AGCAATTTAG
TCGTTAAATC
2990
GCCCCGTGTA
CGGGGCACAT
3000
GGCAATTTGG
CCGTTAAACC
3010
GTAAGAATAA
CATTCTTATT
3020
AACCATATTA
TTGGTATAAT
3030
AGAAAATGAG
TCTTTTACTC
3040
GCTCAACCAC
CGAGTTGGTG
3050
AACCCCAGTA
TTGGGGTCAT
3060
GCATTCTGCT
CGTAAGACGA
3070
CACTGTTCAT
GTGACAAGTA
3080
ATTTTGGCTG
TAAAACCGAC
3090
ATTTTTAAAA
TAAAAATTTT
3100
AAATTCTCTT
TTTAAGAGAA
3110
TTCTGTGCAT
AAGACACGTA
3120
TATTTTACAC
ATAAAATGTG
3130
AGCCGAAATT
TCGGCTTTAA
3140
.....
.....
3150
.....
.....
3160
.....
.....
3170
.....
.....
3180
.....
.....
3'-End of murine GLP-2 Receptor gene sequenced to date.

FIG. 2 Sequence alignment of the 5' end of the mGLP-2 receptor gene with the 5' end of the cDNA encoding the rat GLP-2R.



Sequence alignment of the 5' end of the mGLP-2 receptor gene with the 5' end of the cDNA encoding the rat GLP-2R.

The 5' end of the cDNA encoding the rat GLP-2R (cloned by 5'-RACE) is presented in alignment with the corresponding region of sequence encoding the murine GLP-2R. The upstream initiator ATG codon is present in the rat sequence, and the downstream initiator ATG codon is conserved between in both the rat and murine sequences encoding the GLP-2R. The sequence corresponding to the putative 5'-UTR (untranslated region) is nearly identical between the rat and murine sequences presented.

FIG. 3

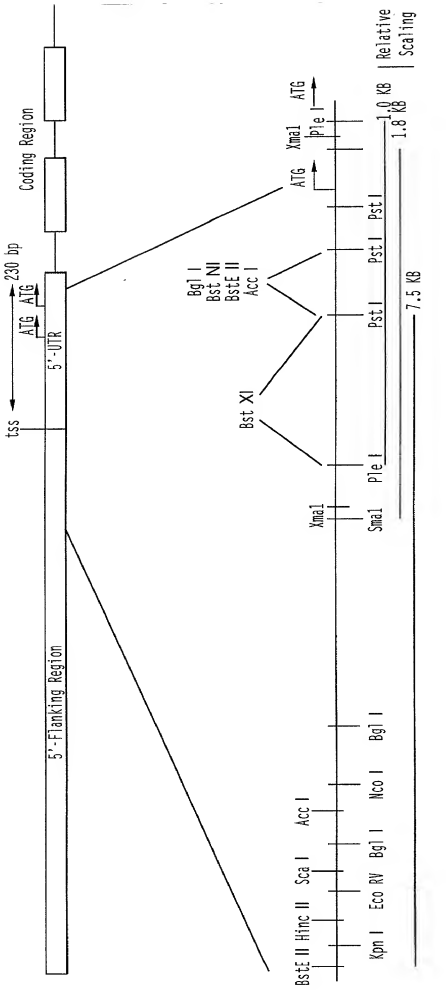

Coding Region
230 bp
ATG
ATG
5'-UTR
tss
5'-Flanking Region
ATG
Xma1
Ple I
Relative Scaling
1.0 KB
1.8 KB
Bgl I
Bst NI
BsteII
Acc I
Pst I
Pst I
Pst I
7.5 KB
Bst XI
Xma1
Sma1
Ple I
BsteII Hinc II
Sca I
Acc I
Kpn I
Eco RV
Bgl I
Nco I
Bgl I

FIG. 4

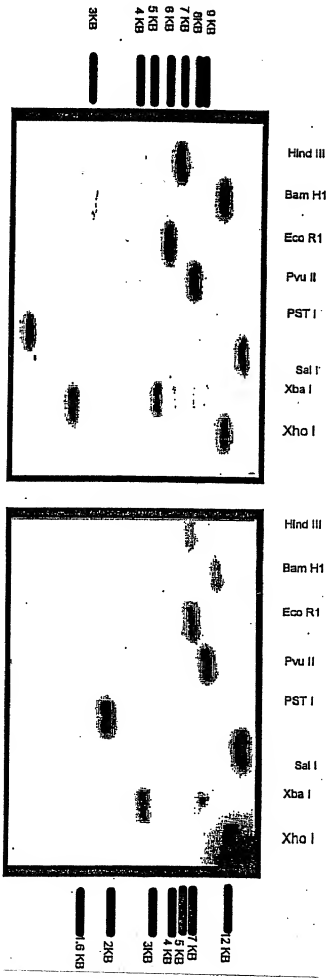

3KB
4 KB
5KB
6 KB
7 KB
8KB
9 KB
Hind III
Bam H1
Eco R1
Pvu II
PST I
Sal I
Xba I
Xho I
Hind III
Bam H1
Eco R1
Pvu II
PST I
Sal I
Xba I
Xho I
1.6 KB
2KB
3KB
4 KB
5 KB
7 KB
12 KB

FIG. 5

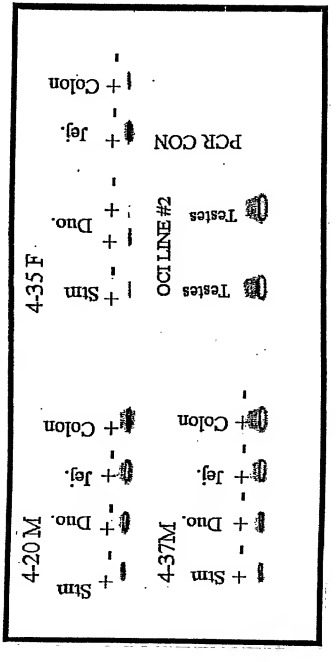

4-35 F
Stm
Duo.
Jej.
Colon
OCI LINE #2
Testes
Testes
PCR CON
4-37M
Stm
Duo.
Jej.
Colon
4-20 M
Stm
Duo.
Jej.
Colon

FIG. 6

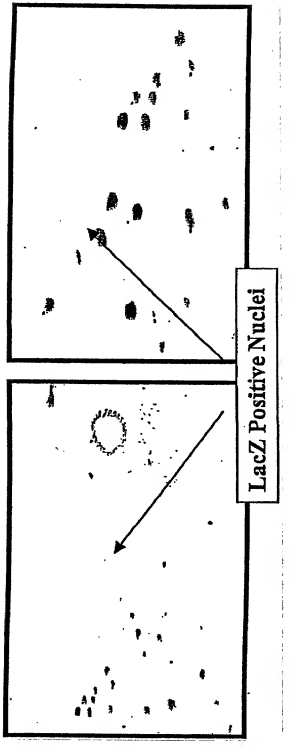


FIG. 7a

```
                 ▼ 5'-end                                                                    5'-UTR
rat GLP-2R cDNA  aacacttcct ctctggacaa ggaggagtgc aggaggccac cgcctgcagt acatcttgga gtgttggagg gatgtgcctg cacttgtgaa cgggcgccag
                       M  R  P  Q  P  S  P  A  V  P  S  R  C  R  E  A  P  V  P  R  V  R  A  Q  P  V
rat GLP-2R cDNA  gaga ATG AGG CCC CAA CCA AGC CCG GCA GTG CCC AGT AGA TGC AGA GAG GCA CCC GTG CCC CGA GTG AGG GCA CAG CCA GTG
                  G  I  P  E  A  Q  G  P  V  P  L  H  S  Q  Q  M
rat GLP-2R cDNA  GGC ATC CCT GAG GCC GAG GGG CCC GTT CCT CTC CAC TCC CAA CAG ATG
```

FIG. 7c

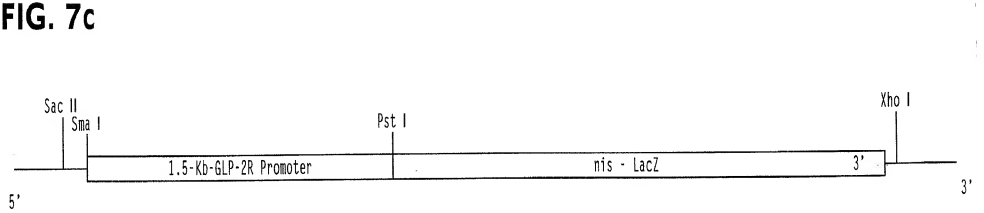
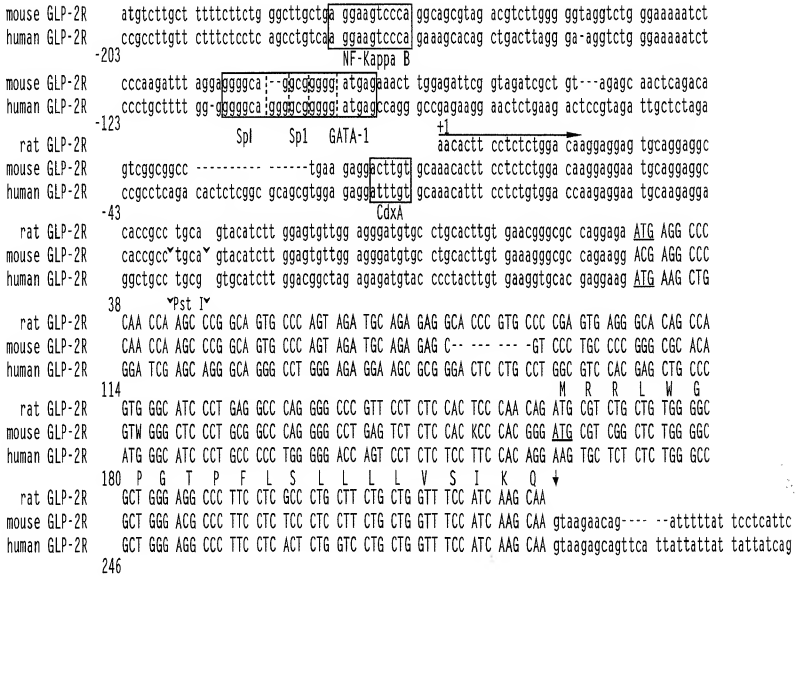


FIG. 7b



Title: GLP-2 RECEPTOR GENE PROMOTER AND USES THEREOF
Inventor(s): Daniel J. DRUCKER
Appl. No.: 09/833,740

FIG. 8a

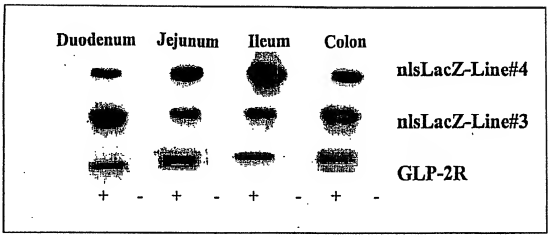

Duodenum
Jejunum
Ileum
Colon
nlsLacZ-Line#4
nlsLacZ-Line#3
GLP-2R
+ - + - + - + -

FIG. 8b

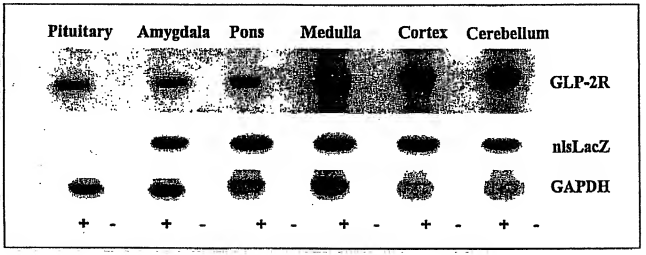

Pituitary
Amygdala
Pons
Medulla
Cortex
Cerebellum
GLP-2R
nlsLacZ
GAPDH
+ - + - + - + - + - + -

FIG. 8c

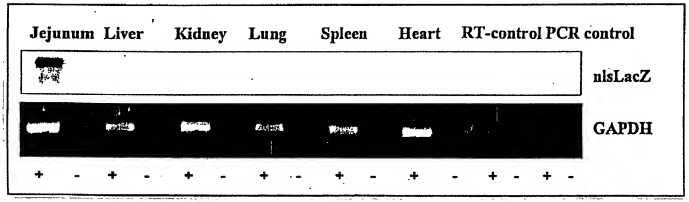

Jejunum
Liver
Kidney
Lung
Spleen
Heart
RT-control
PCR control
nlsLacZ
GAPDH
+ - + - + - + - + - + - + - + -

FIG. 8d

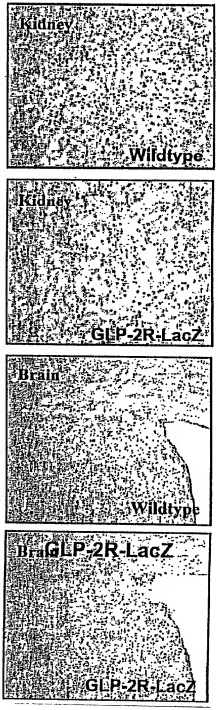

Kidney
Wildtype
Kidney
GLP-2R-LacZ
Brain
Wildtype
Brain
GLP-2R-LacZ
GLP-2R-LacZ

FIG. 9a

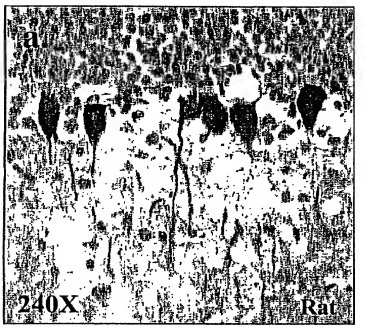


FIG. 9b

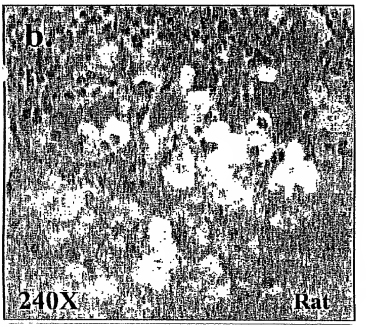


FIG. 9c

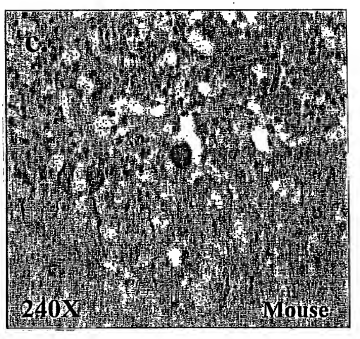


FIG. 9d

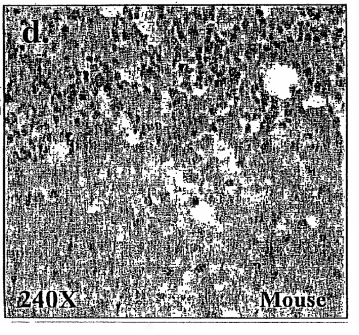


FIG. 9e

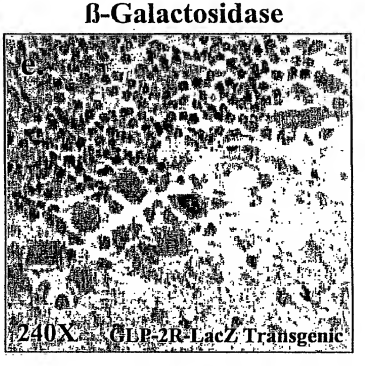
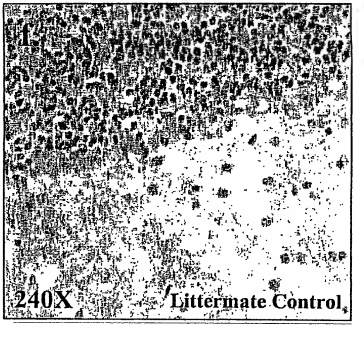

ß-Galactosidase
240X
GLP-2R-LacZ Transgenic

FIG. 9f


ß-Galactosidase
240X
Littermate Control

GLP-2R

FIG. 10a

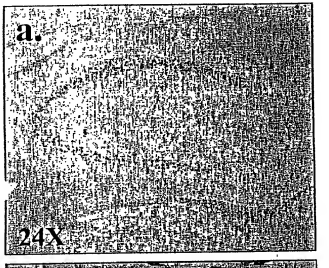
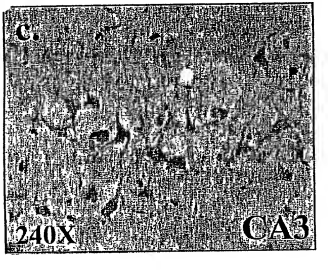


FIG. 10b

FIG. 10c



β-Galactosidase

FIG. 10d

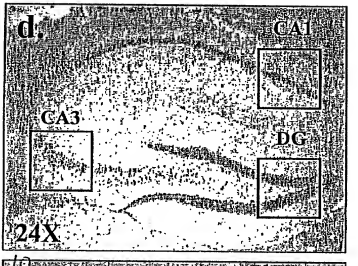


FIG. 10e

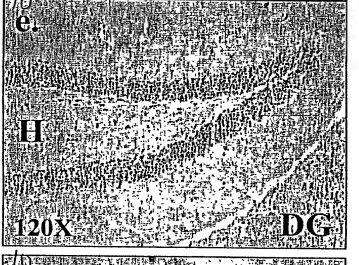


FIG. 10f

β-Galactosidase

FIG. 10g

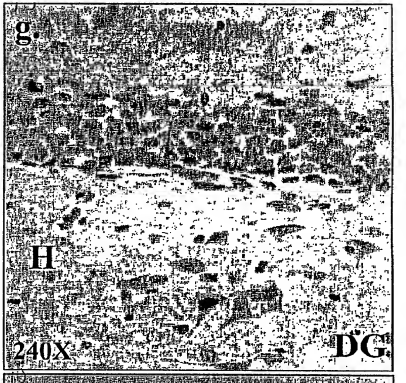


FIG. 10h

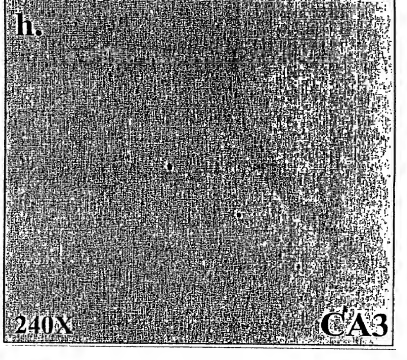


FIG. IIa

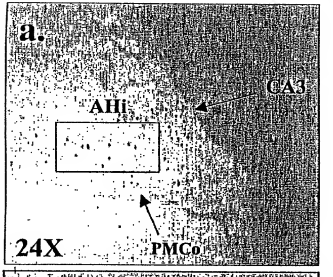


FIG. IIb

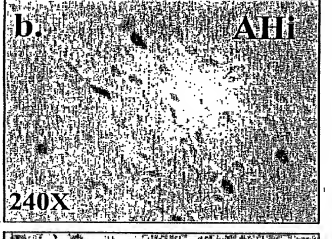


FIG. IIc

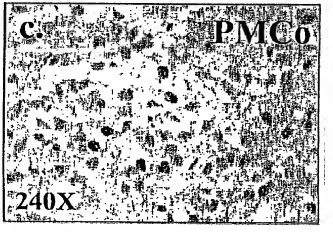


FIG. IId

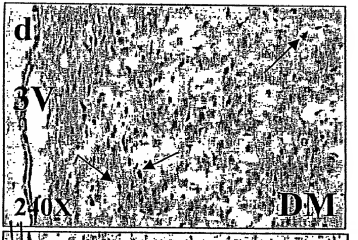


FIG. IIe

FIG. IIf

FIG. IIg

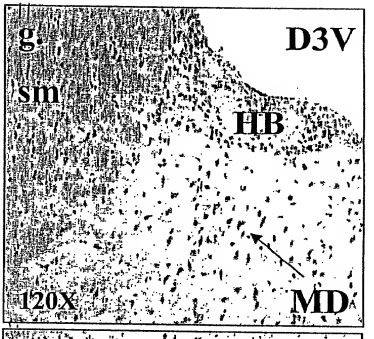


FIG. IIh

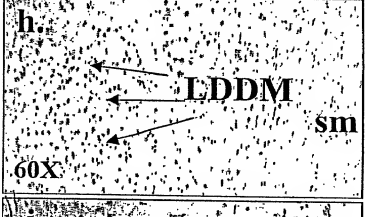


FIG. IIi